Название: Investigation of the influence of Zinc-containing compounds on the components of the colloidal phase of milk

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Аннотация: To solve the problem of insufficient intake of essential macro - and micronutrients into the human body, particularly in the case of the essential trace element Zinc, the possibility of enriching a socially significant product (milk) with various forms of Zinc is considered. The influence of Zinc-containing compounds on the colloidal milk system's dispersed composition and stability, photon correlation spectroscopy methods, acoustic and electroacoustic spectroscopy was established in this research. It has been shown that Zinc lysinatoriboflavinate, is a colloidal and chelated organic form of the essential trace element Zinc, having the most negligible effects on the composition and stability of the dispersed phase particles. This increases the average hydrodynamic radius of the dispersed phase by 5% and the zeta-potential by 10%.
A quantum-chemical simulation of the interaction of milk kappa-casein sites with various forms of the essential trace element Zinc in the QChem program was performed using the IQmol molecular editor. The mechanism of action of various forms of Zinc on the components of the dispersed system of milk, in particular milk protein (casein), is suggested. (C) 2021 The Authors. Published by Elsevier B.V. on behalf of King Saud University.

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